

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for detecting pathogens attached to specific antibodies, comprising:
 - providing a fluidic channel with at least one pair of spaced electrodes,
 - providing an AC or DC power source to produce an electric field across the at least one pair of spaced electrodes,
 - depositing antibodies on the spaced electrodes,
 - providing antibody coated beads,
 - directing a sample fluid containing pathogens and the antibody coated beads past the spaced electrodes,
 - allowing the pathogens to bind to the antibodies that are deposited on the spaced electrodes,
 - allowing the antibody coated beads to stick to the pathogens that are bound to the antibodies that are deposited on the spaced electrodes,
 - measuring the impedance between the spaced electrodes prior to said sample fluid containing pathogens and the antibody coated beads being directed past the spaced electrodes, and
 - determining the presence of pathogens attached to the antibodies by measuring change in impedance between said pair of spaced electrodes with the antibody coated beads amplifying the change in impedance.
2. (Cancelled)
3. (Original) The method of Claim 1, wherein the at least one pair of electrodes comprises a plurality of adjacent spaced pairs of electrodes.
4. (Original) The method of Claim 1, wherein the at least one pair of spaced electrodes is formed on surfaces of the fluidic channel.

5. (Original) The method of Claim 4, wherein forming the spaced electrodes on the surfaces of the fluidic channel is carried out by depositing an interdigitated electrode on the surfaces whereby adjacent fingers of the interdigitated electrode form at least one pair of spaced electrodes.

6. (Original) The method of Claim 5, additionally including forming the interdigitated electrode to produce a plurality of sets of adjacent pairs of electrodes.

7. (Original) The method of Claim 1, additionally including providing an impedance sensor assembly operatively connected to at least one pair of spaced electrodes for measuring the impedance between the spaced electrodes, and including impedance readout means.

8. (Original) The method of Claim 7, additionally includes providing reference electrodes in insulated and spaced relation to the at least one pair of spaced electrodes, and electrically connecting the impedance sensor assembly to the reference electrodes.

9. (Original) The method of Claim 7, wherein providing the impedance sensor assembly is carried out by at least amplifiers and mixers to measure the in-phase and out-of-phase impedance.